

## CLAIMS

I claim:

1. A method of directing a computer network for booting using an embedded operating system (OS) based computer, the method comprising:

listening with an embedded OS based computer to PXE requests from a plurality of PXE enabled target servers of a computer network; and

providing from the embedded OS based computer to one of the plurality of PXE enabled target servers a netboot program and address information of a boot server from the embedded OS based computer responsive to a PXE request from one of the PXE enabled target servers.

2. The method as in claim 1, wherein the computer network comprises a plurality of subnetworks of PXE enabled target servers.

3. The method as in claim 2, wherein the embedded OS based computer listens to one of the subnetwork.

4. The method as in claim 3, wherein the embedded OS based computer listens to one of the subnetwork by wireless communication.

5. The method as in claim 1, wherein the embedded OS is Windows CE operating system.

6. The method as in claim 1, wherein the plurality of PXE enabled target servers are part of a subnetwork of the computer network.

7. The method as in claim 1, wherein the listening step is performed through a TCP/IP stack.

8. The method as in claim 1, wherein the address information of the boot server comprises an IP address.

9. The method as in claim 1, further comprising transferring a boot image from the boot server responsive to netboot program executing on one of the PXE enabled target server.

10. The method as in claim 9, wherein the boot image is provided through a router.

11. The method as in claim 9, wherein the boot image is provided by wireless communication.

12. The method as in claim 9, wherein the boot image comprises responses to preboot execution environment queries.

13. The method as in claim 9, wherein the boot image further comprises a script specific to the requesting target server.

14. The method as in claim 9, wherein the boot image comprises code to install at least one operating system.

15. The method as in claim 9, wherein the boot image comprises application software.

16. The method as in claim 9, wherein the netboot program is executed out of a read-only memory.

17. The method as in claim 9, wherein the boot image is transferred using a trivial file transfer protocol.

18. The method as in claim 9, wherein the PXE enabled server is booted by executing the boot image.

19. The method as in claim 1, further comprising displaying address information for the plurality of PXE enabled servers.

20. The method as in claim 1, further comprising displaying a plurality of boot images for the plurality of PXE enabled servers.

21. The method as in claim 1, further comprising displaying PXE requests for the plurality of PXE enabled servers.

22. An embedded OS based computer for network booting under PXE control, the computer comprising:

a network interface controller (NIC);

an embedded OS operating system to control the NIC;

a microcontroller coupled to the NIC;

a microcontroller executable preboot execution environment routing software, which is adapted to perform the microcontroller executable steps of:

listening with an embedded OS based computer to PXE requests from a plurality of PXE enabled target servers of a computer network; and

providing from the embedded OS based computer to one of the plurality of PXE enabled target servers a netboot program and address information of a boot server from the embedded OS based computer responsive to a PXE request from one of the PXE enabled target servers.

23. The embedded OS based computer as in claim 22, further comprising a display coupled to the processor.

24. The embedded OS based computer as in claim 22, further comprising an input device coupled to the processor.

25. The embedded OS based computer as in claim 22, further comprising a memory coupled to the processor.

26. The embedded OS based computer as in claim 25, wherein the memory further comprises:

a web browser;

PXE service applications;

a TFTP application;

a Net Boot Program (NBP); and

a boot image.

27. The embedded OS based computer as in claim 25, wherein the embedded OS based computer is configured through the web browser.

28. The embedded OS based computer as in claim 25, wherein the embedded OS based computer is configured directly.

29. The embedded OS based computer as in claim 22, wherein the NIC is implemented as part of the microcontroller.

30. A system for booting a computer network, the system comprising:  
a target network of PXE enabled servers;  
an embedded OS based computer adapted to be coupled to the target network,  
the embedded OS based computer comprising:  
a network interface controller (NIC);  
an embedded OS operating system to control the NIC;  
a microcontroller coupled to the NIC; and  
a microcontroller executable preboot execution environment routing software, which is adapted to perform the microcontroller executable steps of:  
listening with an embedded OS based computer to PXE requests from a plurality of PXE enabled target servers of a computer network; and  
providing from the embedded OS based computer to one of the plurality of PXE enabled target servers a netboot program and address information of a boot server from the embedded OS based computer responsive to a PXE request from one of the PXE enabled target servers; and  
a boot server coupled to the embedded OS based computer and to the network.

31. The system as in claim 30, further comprising a memory coupled to the processor.

32. The system as in claim 31, wherein the memory further comprises:  
a web browser;  
PXE service applications;

- a TFTP application;
- a Net Boot Program (NBP); and
- a boot image.

33. The system as in claim 30, wherein the embedded OS based computer includes at least one PXE application to provide desired PXE services.

34. The system as in claim 30, wherein the computer network comprises a plurality of subnetworks of PXE enabled target servers.

35. The system as in claim 30, wherein at least one embedded OS based computer listens to one of the subnetwork.

36. The system as in claim 30, wherein the data transfer protocol comprises trivial file transfer protocol (tftp).

37. The system as in claim 30, wherein the boot server provides the boot image for each target server on the computer network.

38. The system as in claim 30, wherein the computer is a hand held computer.